What is claimed is:

1. A method of controlling suspension performance in vehicles
having hydropneumatic suspension devices between suspended
[sprung] and unsuspended [unsprung] masses and extremely

5   variable axle load ratios, in particular on vehicles in which
the front axle is subjected to a low, medium or high static
load range, depending on the application of the vehicle, and
the suspension device has double-action hydraulic cylinders

10   between the suspended and unsuspended masses, their pressure
chambers being connectable to a pump over pressure lines, a
pressure-regulating valve being installed in the pressure line
to the annular spaces, the pressure-regulating valve
constantly correcting the pressure in the annular spaces to

15   the pressure in the piston spaces in a predefined ratio,
wherein the pressure (P_R) in the annular spaces (7, 8) of the
spring cylinders (1, 2) is increased in the low load range (n)
on the front axle.

20   2. The method according to Claim 1,
wherein the pressure (P_R) in the annular spaces (7, 8) is also
increased in the high load range (h) of the front axle.

3. The method according to Claim 1,

25   wherein the annular space pressure (P_R) is switched in two
pressure stages having a difference of up to 50 bar as a
function of the pressure (P_Z) in the piston spaces (3, 4).

4. A device for implementing the method according to one of

30   Claims 1 through 3, a hydropneumatic suspension device for
vehicles having extremely variable load conditions, in which
spring cylinders (1, 2) which have load-carrying piston spaces
(3, 4) and pressure-loaded annular spaces (7, 8) surrounding
the piston rod with a seal are situated between the suspended

35   and unsuspended masses, the piston spaces (3, 4) being
connected to a first hydraulic accumulator (15) and the

annular spaces (7, 8) being connected to a second hydraulic accumulator (12), and a pressure-regulating valve (20) being provided, which is inserted into the pressure line (19) to the annular spaces (7, 8),

5   wherein the pressure-regulating valve (20) is controlled by a pilot valve (56) which is actuated by the inlet pressure (P_z) to the piston spaces (3, 4) and which switches the pressure-regulating valve (20) to a higher regulating stage when the pressure drops below a predetermined inlet pressure (P_z) in the

10   inlet line (16) to the piston spaces (3, 4).

5. The device according to Claim 4,
wherein the pilot valve (56), designed as a valve having a double reversal, switches the pressure-regulating valve (20)

15   from the inlet pressure (P_z) to the higher regulating stage at a low pressure level and at a high pressure level.

6. The device according to Claim 4 or 5,
wherein the pilot valve (56) is a 3/2-way solenoid valve which

20   is switched by the pressure sensor in the inlet pressure (P_z).

7. The device according to one of Claims 4 through 6,
wherein the control line (42) for the regulating spring (41) of the pressure-regulating valve (20) is connected to the

25   inlet line (63) leading to the annular spaces (7, 8) between the non-return valve (21) and the annular spaces (7, 8).

8. The device according to one of Claims 4 through 7,
wherein the control line (42) is provided with a deblockable

30   non-return valve (50).

9. The device according to one of Claims 4 through 8,
wherein a throttle (18) is inserted between the connection (52) of the control line (42) to the inlet line (60) and the

35   connecting line (11) of the annular spaces (7, 8).

10. The device according to one of Claims 4 through 9,

wherein the deblocking control line (51) of the non-return valve (50) is connected to the control line (24) of the non-return valves (17, 21) of the inlet lines (16, 19).

Key to figures

Figures 1, 2, 3:

Achsfederrate C = axle spring constant C

Zylinderdruck P_z = cylinder pressure P_z

5   Achslast A = axle load A